

REMARKS

Claims 2-4, 6, 9-11, and 13 remain pending in this application for which applicants seek reconsideration.

Amendment

Claims 2, 4, 9, 11, and 13 have been amended. Specifically, independent claims 2 and 9 have been amended to clarify that the switching to the first mode occurs after completing the image formation in the second mode to overcome the § 112 rejection. Claims 2 and 9 further have been amended to define starting driving of "all" the scanners not being used in the image formation in the second mode while in the second mode. See Fig. 7 for example, where it illustrates all the scanners 13b, 13c, 13d not being used in the second mode are being started to be driven while carrying out the image formation in the second mode. Dependent claims 4, 11, and 13 have been amended to reflect the changes made to their parent claims and to improve their form. No new matter has been introduced.

§ 112 Rejection

The examiner rejected claims 2-4, 6, 9-11, and 13 under 35 U.S.C. § 112, second paragraph, because the language "in the case where the image formation in the second mode is switched to the image formation in the first mode while the image formation is being carried out in the second mode" is deemed inaccurate. According to the examiner, it is impossible to switch to the first mode (i.e., color mode) during the second mode (i.e., monochrome mod) printing operation. The claims now clearly states that the switching to the first mode takes place after the printing operation in the second mode is finished.

Art Rejection

Claims 2, 3, 9, and 10 were rejected under 35 U.S.C. § 102(b) as anticipated by Arai (USPGP 2002/0080220). Claims 4 and 11 were rejected under 35 U.S.C. § 103(a) as unpatentable over Arai in view of Gomi (USP 6,314,251). Lastly, claims 6 and 13 were rejected under § 103(a) as unpatentable over Arai in view of Oda (USP 6,094,208).

In the last reply, applicants explained that Arai would not have disclosed or taught starting preparation of the scanners not being used for the image formation in the second mode for the image formation in the first mode while the image formation is being carried out in the second mode. In this respect, applicants explained that Arai starts all the polygons to form a

ready-to-write condition, regardless of whether the first image is in a full color mode or a black and white mode. The only difference between the black and white printing process and the color image printing process in Arai is the order of starting the polygons.

In response, the examiner asserts that Arai's disclosure of placing all the polygons in a ready-to-write condition, regardless whether the first image is in a full color mode or a black and white mode reads on the claim limitation of preparing the scanners not being used for the second mode printing since Arai drives the scanners other than the one used for the second mode printing. Specifically, Arai drives the polygons 434Y, 434M, and 434C while operating the polygon 434K.

Arai discloses, in a color image printing mode (i.e., first mode) as shown in Fig. 4(a), starting the polygon 434Y first. After the polygon 434Y reaches a constant speed at t₂, the Y laser representing the laser light source of the exposure device 43Y for the Y image is driven at time t₃ to perform the writing of the Y image. The M laser, C laser, and K laser are driven in the same manner as Y laser, to perform the writings of the M image, C image, and K image in this order.

In the black and white printing mode (i.e., second mode) as shown in FIG. 4(b), Arai discloses starting the polygons in the following order: 434K, 434Y, 434M, and 434C. The polygon 434K is started first at t₁. After reaching a constant speed at t₂, the laser light source of the exposure device 43K for the K image is driven to perform the writing. Arai discloses starting the polygon 434K first in the black and white printing mode and the polygon 434Y in the color image printing mode.

At the start of a continuous printing process for forming a plurality of the images, one of the starting controls as shown in FIG. 4(a) and FIG. 4(b) is selected, depending on whether the first image is to be printed in the full color mode or the black and white mode. When the first image is to be printed in the full color mode, FIG. 4(a) is selected, and when in the black and white mode, FIG. 4(b) is selected. Arai starts the polygons 434Y, 434M, and 434C while in the black and white mode to form a ready-to-write condition for the polygons other than the polygon 434K, for preparing for the possibility that the color image will be formed after the first black and white image or on the next print job.

That is, Arai calls for maintaining all the polygons in a ready-to-write condition after one of the starting controls is performed, regardless of whether the first image is in the full color mode or the black and white mode. This make it possible to reduce the period required for obtaining an image output in case the printing mode needs to be changed from the black and white printing mode to the color image printing mode. Arai thus calls for continuously driving all

the polygons even if they are not used for forming an image. This is not only wasteful in terms of energy consumption, it prematurely wears out the polygon driving mechanisms. Stopping the polygons not used in the black and white printing mode during the black and white printing mode can prevent wear and excess energy consumption. This, however, prevents Arai from maintaining all the polygon in the ready-to-write condition.

Independent claims 2 and 9 call for starting the driving of all the scanners not being used for the image formation in the second mode during the second mode only when the image formation needs to perform the first mode after the image formation in the second mode is completed. Thus, the claimed invention makes it possible to reduce the time required for obtaining an image output, when changing the image forming operation from the monochromatic image formation mode to the color image formation mode and prevent premature wear of the polygons.

Note that these claims call for starting driving all the scanners not being used in the second mode only when the switching actually need to occur (i.e., switching instruction given) from the second mode to the first mode. In short, Arai would not have disclosed or taught starting the driving of its polygons 434Y, 434M, and 434C only at the time instruction to switch from the black and white mode to the full color mode is given. Rather, Arai calls for keeping the polygons 434Y, 434M, and 434C in a ready-to-write condition before the instruction to switch the printing mode is received, whereas claims 2 and 9 call for starting the driving after the switching instruction is given.

Applicants submit that the secondary references, namely Gomi and Oda, would not have alleviated Arai's shortcomings noted above. Accordingly, even if these references were deemed properly combinable with Arai for argument's sake, applicants submit that the combination would not have disclosed or taught the claimed invention.

Conclusion

Applicants submit that this application is in condition for allowance. Should the examiner have any issues concerning this reply or any other outstanding issues remaining in this application, applicants urge the examiner to contact the undersigned to expedite prosecution.

Respectfully submitted,

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DATE

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